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Comments on the Market Advisory Committee's Draft Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California (June 1, 2007)

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We commend members of the Market Advisory Committee (MAC) for preparing a comprehensive and lucid report and for making clear and concise recommendations.

Our comments here address several critical market design issues. In addition, we have attached a presentation given on May 8, 2007, to the Power Association of Northern California, entitled "Critical Elements of Greenhouse Gas (GHG) Markets," which further addresses these issues.

Noteworthy Points from the MAC's June 1 Draft Recommendations

Noteworthy points based on recommendations in the draft report are as follows:

1. Without new technologies it will not be possible to achieve global GHG reduction targets. As noted in the report, in addition to the incentives provided by a properly designed cap-and-trade market, complementary policies to promote the development and commercialization of improved technologies will be needed.[1]
2. The goal of achieving global GHG emissions reductions should be kept firmly in mind, as well as learning from prior experience with other emissions trading and regulatory programs. Key MAC recommendations based on prior emissions market experience concern the degree of market scarcity for emissions allowances, unrestricted allowance banking, standards-based offsets, a learning phase for compliance, and coordination with other markets.[2]
3. Environmental integrity requires that "any emissions covered by the cap-and-trade program must be monitored, reported and verified with a high degree of accuracy."[3] As we point out later in these comments, the California Public

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[1] Market Advisory Committee, Recommendations for Designing a Greenhouse Gas Cap-and-Trade System for California. Draft Report to the California Air Resources Board, June 1, 2007. pp. 14, 19. We will also refer to this report as the MAC Draft Report.
[2] MAC Draft report, pp. 15-17.
[3] MAC Draft Report, p. 23.

Utilities Commission's (CPUC's) proposed load-based market design does not meet the criteria for environmental integrity.

4. Including the transportation sector in the cap-and-trade program will help provide "a consistent price signal across all sectors" and could lead to innovative solutions in the transport sector, which produces more GHG in California than any other sector.[4]

5. The MAC's recommended first seller approach could provide an interim step toward a Western Electricity Coordinating Council-wide (WECC-wide) or a national source-based cap-and-trade market. For reasons discussed below, the MAC's recommended first seller approach is preferable to the CPUC's proposed load-based approach for the electric sector. However, without WECC-wide coverage, the first seller approach for California will also create incentives for generators and other market participants to sell to buyers outside California not covered by GHG requirements, leading to higher prices and possible power shortages in California during tight market conditions.[5]

   The logical solution is a WECC-wide, source-based approach, so that this and other perverse circumstances are less likely to occur. The MAC appropriately concludes, "If the major electricity generating states in the WECC were to agree on the electricity portion of a cap-and-trade program, a simple generator-based approach could be employed without concern for leakage, contract shuffling, or gaming, and without the attendant complexity of a load-based system." [6] Van Horn Consulting (VHC) concurs with this conclusion.

6. The MAC points out that there has been little, if any, analysis about how a cap-and-trade program will interact with the California Independent System Operator's (CAISO) Market Redesign and Technology Upgrade (MRTU), which will be implemented in 2008.[7] More particularly, we have doubt whether Load Serving Entities (LSEs) will be able to adequately control emissions for which they would be held responsible under a load-based cap without

[4] MAC Draft Report. p.35. Van Horn Consulting suggests that a GHG tax per gallon would be an appropriate means for directly pricing transportation emissions. Alternatively, a vehicle emissions fee could be added to the registration fee and collected from cars and trucks every two years with no additional transaction costs, based on measured tailpipe emissions and recorded mileage that are already transmitted electronically to the State during bi-annual vehicle smog testing, which is required for registration.

[5] Differences in FERC and CAISO price caps, the lack of long-term contracts and a supply-demand imbalance all contributed to the major electricity price increases experienced during 2000-2001. If all western states in the WECC do not adopt similar source-based approaches, very careful GHG market design and monitoring will be needed to avoid future reliability issues and disruptions of WECC electricity markets. Even so, the confluence of adverse market conditions, like low hydro-electric production and rapid electric load growth, will require careful selection of market parameters to avoid potential pitfalls.

[6] MAC Draft Report, p. 49.

[7] MAC Draft Report, p. 43.

disrupting electricity markets and established trading and contracting practices.

VHC's Points for CARB to Consider

It is important that California's GHG market design creates efficient markets, in the short run, and incentives to develop new technologies in the long run.

Several market design elements are critical:

- The level and pace of mandated GHG reductions prior to 2020 and after 2020. Very stringent short-term caps in some sectors could strand investments in the short run and, more importantly, lock-in too much of today's natural gas-fired technologies for the long run. Very little, if any, credible analysis has been performed regarding pre- and post-2020 reduction paths and the impacts of particular caps on the affected industries, including electricity and natural gas.
- Acceptability and criteria for Offset Projects. Since the need to reduce GHG is a global problem, offset projects both within and outside California should be encouraged. Establishing performance criteria or standards for certification of specified types of offset projects is the approach taken by the Regional Greenhouse Gas Initiative (RGGI). However, only domestic projects will qualify there, unless an allowance price limit is exceeded. Since there can be numerous offset projects with real, verifiable and enforceable reductions, putting price and quantity restrictions on offsets will increase uncertainty and impede the development of a robust global market for GHG reductions, as well as markets for the export of technologies developed in California.[8]

  Working to develop a "projects to protocols" approach will enable the emissions benefits, technology innovations and lower costs of offset projects to be obtained, while ensuring their environmental integrity.[9]
- The CPUC's load-based cap. A load-based market design is administratively unworkable and flawed as an enforceable regulatory tool or as an acceptable market mechanism.[10] Since tens of thousands of electricity market

[8] We concur with the MAC's recommendation "that California should reject geographic or quantitative limitations on offset credits so as to maximize the opportunity to reduce GHG emissions at the lowest cost." MAC Draft Report, p. 61. Moreover, since GHG reduction is a global problem, California's offset policy should encourage verified reductions in developing countries, such as Certified Emission Reductions approved under the Clean Development Mechanism of the Kyoto protocol.

[9] VHC's presentation, "Critical Elements of Greenhouse Gas Markets," attached along with these comments, provides additional reasons why offsets should be encouraged.

[10] The MAC recognizes the administrative difficulty but does not address the costs of trying to track and verify GHG emissions under a load-based approach when it states: "With respect to administrative simplicity, it is much more straightforward and less cumbersome to report and track generator emissions than to report and track emissions associated with load-based sales." (MAC Draft Report, p. 45.) The difficulties and costs of implementation, verification and administration of any load-based scheme will increase more than linearly with the number of LSEs and transactions involved.

transactions occur each hour, and since utilities do not control system dispatch decisions or bids under the California Independent System Operator's (ISO's) Market Redesign and Technology Update (MRTU), the proposed load-based system will be inaccurate and unverifiable. In addition to providing misaligned incentives to market participants, the CPUC's proposed load-based design is incompatible with RGGI, the European Union's Emission Trading Scheme (EU ETS) and proposed U.S. legislation, making a transition to a U.S. trading system more difficult and costly for California. (See below for eleven reasons why a load-based approach will not work.) Any cap has to rely on accurate, measurable and verifiable emissions, a task that cannot be accomplished with the load-based index approach.

- <u>Incentives for technology RD&D</u>. Over the long term, technology incentives and improvements for both fossil-fired and renewable generation will be necessary to achieve our goals for GHG reductions. Indeed, GHG reductions from coal-fired generation will be essential to meet stringent state or federal caps. However, despite California's past and current reliance on coal (about 20 percent of our electricity consumption comes from out-of-state coal-fired power plants), the CPUC's load-based approach and its new Emissions Performance Standard (EPS) will inhibit research and the commercialization of new coal-based generation technologies by making it risky for California utilities to invest in Integrated Gasification Combined Cycle (IGCC) and Carbon Sequestration and Storage (CSS) projects, because such projects might not meet the CA EPS in practice.

  Overall, a mix of improved renewable, fossil-fired and nuclear technologies will be needed to reach global GHG reduction targets. Along with incentives provided by a well-designed cap-and-trade program, specific funding and added incentives for research, development and commercialization of new technologies will be essential to meet 2050 emissions targets.

- <u>Auctions vs. Allowance Allocation</u>. Although there are pros and cons for each method of distributing allowances, in the regulated electric utility sector in California there is little potential for "windfall profits" due to initial over-allocation. Auctions could require considerable up-front expenses that would be passed on to ratepayers. Initially, there is a great asymmetry of information known to the different parties and sectors that would need to bid for allowances. An approach that first allocates allowances, then phases in partial auctions over a few years would increase market liquidity and allow participants to become familiar with the market, before committing large amounts of capital to purchase allowances, in addition to spending the capital needed to achieve GHG reductions over time.

Importantly, there has been a distinct lack of quantification and few credible analyses of the costs and benefits of proposed GHG policies.[11] The CPUC's "workshop" process has not elicited the type of information or broad-based scrutiny needed to make responsible decisions. Without detailed analysis and public scrutiny, such as from evidentiary hearings, California Air Resource Board decision makers will not be adequately informed. Unfortunately, this "rush to judgment" has many similarities to the situation in 1996-1997 with California's electricity restructuring debacle, where certain objectives were set but were not adequately analyzed or scrutinized.

As citizens of California, we all need to be concerned about the success or failure of California's market design. ***The bottom line issue is how to create a true global market, where the GHG price is internalized in products, not a California-centric, micro-managed market, incompatible with other market designs.*** Some of VHC's specific concerns about the infeasibility of the CPUC's proposed "load-based" GHG regulatory approach are listed below.

11 Reasons Why a Load-based GHG Market Design is Significantly Inferior to a Source-based Market Design

There are many reasons why a load-based GHG regulatory system is undesirable and <u>probably unworkable</u>. Some are:

1. **inherent inaccuracies**, due to the need to apply imputed emissions for purchased system power, combined with the administrative infeasibility of tracking a very large number of transactions from source to load. In the CA ISO control area alone there are 15,000 transactions per hour with 99 load schedules and 800 to 1,000 custody exchanges between market participants per hour.[12] Even if load-based GHG emissions are estimated for index purposes, the inaccuracies would preclude effective verification and trading of load-based allowances among the many control areas in the western region.[13] There are 34 control areas in the WECC system.
2. **difficulty in verifying totals**, especially given that individual generators can simultaneously serve different Load Serving Entities (LSEs) in multiple control areas, some of which are likely to be unregulated.
3. **inability of LSEs, like Pacific Gas and Electric Company (PG&E), to control emissions from sources procured by the CA ISO** for ancillary services and imbalance energy (about 5 % of total procured energy).

[11] Stavins, Jaffe, and Schatzki (2006), "Too Good to Be True? An Examination of Three Economic Assessments of California Climate Change Policy", AEI-Brookings Related Publication 07-01, January 2007. http://www.aei.brookings.org/publications/abstract.php?pid=1151
[12] Lonnie Rush & Kyle Hoffman, CAISO, Presentation to the CPUC on April 12, 2007.
[13] As just one example, only about 56 percent of emissions from imported electricity can be precisely identified, according to a 2007 CEC report: Alvarado, A and Griffin K. <u>Revised Methodology to Estimate the Generation Resource Mix of California Electricity Imports: Update to the May 2006 Staff Paper</u>. Sacramento, CA: California Energy Commission, 2007. Such a situation does not satisfy the requirements for environmental integrity.

Moreover, many new utility contracts are "system" contracts, not "unit-specific" contracts.

4. **inability of LSEs to dispatch resources under the CA ISO's upcoming MRTU**. Coal plants with low bids will still be dispatched. No public studies of the ability of LSEs to manage emissions or the effects of MRTU on GHG emissions have been conducted, despite the fact that planning for the MRTU has gone on for several years.
5. **misalignment of market incentives** for vendors of technologies that reduce emissions – i.e., under a load-based system the utilities will hold the allowances, not emission sources. The responsibility and incentives for achieving lower emissions and for purchasing lower emitting technologies should lie with emission sources, not with the buyer of electric power.[14]
6. **disruption of current electric product markets and contracting practices**, not to mention impeded electricity market trading within and between control areas. The reporting and tracking requirements for transactions that change hands multiple times have not been evaluated. In addition, unless GHG regulations cover the entire WECC, there will be an incentive for sources to sell to non-California market participants or LSEs.
7. **need for many sources to participate in a dual, hybrid regulatory structure** where both load-based and source-based regimes must be satisfied,
8. **inability to send a consistent market-clearing price signal** to all potential buyers using the western grid. The effective electricity price from fossil-based generators to a non-California LSE will be different than the effective price to a California LSE. Hence, a load-based approach will encourage GHG emitting electric generators to serve markets outside California, rather than the California market. Electricity market prices will be skewed.
9. **incompatibility of a California/Oregon load-based approach with RGGI and the EU ETS**, which are source-based markets. Geographic source diversity and differences in reduction costs are the driving forces behind cap-and-trade. Ultimately, linkages between regional markets must occur to capture the benefits of cap-and-trade.
10. **lack of scalability**, i.e., under a load-based approach the capability to accurately track emissions for multiple utilities across multiple control areas becomes progressively more difficult the larger the number of utilities, market participants and LSEs involved. (Apparently, no one has estimated the scale-up requirements or costs for a tracking and verification system that must

[14] Some have argued that a load-based approach will encourage greater adoption of energy efficiency measures and renewable technologies. Since the CPUC currently mandates the adoption of energy efficiency measures and renewable generation technologies and can continue to do so, this is a debatable presumption.

reconstruct both sources and emissions for all transactions crossing control area boundaries.)

11. **the wasted time, higher costs and diverted resources**, that could have been devoted to hastening the time when the U.S. will adopt a national source-based market design for GHG. Until the U.S. develops a national plan and commercializes improved technologies, India, China and other large emitting developing countries will continue to expand their GHG emissions by employing today's technologies.

Two issues frequently cited are *"leakage"* and *"contract shuffling."*

"Leakage" arises from California's inability to regulate electric generation sources outside CA, which amount to about 10% of California's annual GHG emissions. It is concern about leakage that led to the load-based approach recommended by the CPUC.[15] Nevertheless, the total possible amount of CA "leakage" should be compared to unregulated emissions in the rest of the WECC and in the U.S. outside CA and RGGI. Indeed, two year's growth in China's CO_2 equals CA's entire CO_2 emissions over one year. It simply doesn't make sense to implement a flawed load-based system to try to cover California's "leakage," when what is truly needed is a WECC-wide and a U.S. national approach.

Contract shuffling (i.e., importing power with low GHG emissions to California while shifting power with higher GHG emissions to other states) could also significantly reduce the GHG reductions achievable from any load-based design. According to a recently released study by the Electric Power Research Institute, up to 85 percent of the reductions achieved under a load-based approach in California might be wiped out by increases in GHG emissions elsewhere in the WECC by employing contract shuffling tactics.[16]

[15] Another issue cited is that a load-based cap could avoid interstate legal problems by treating in-state and out-of-state sellers similarly. Collaboration on a common source-based market framework with other western states would also avoid this difficulty, much like the regional model proposed by RGGI.

[16] The EPRI report states: "Specifically, the analysis shows that, because of contract shuffling, for every ton of emission reduction from the electric sector in California, there could be an increase of 0.85 tons of electric sector emissions from the rest of the western states. Conversely, until full regional emission trading systems are created, regulatory efforts to prevent such contract shuffling could significantly increase costs to California ratepayers." CRA International, *Program on Technology Innovation: Economic Analysis of California Climate Initiatives: An Integrated Approach, Volume 1: Summary for Policymakers*. EPRI, Palo Alto, CA: 2007. Report 1014641. p. 1-7.

California Must Avoid A Premature Rush to Judgment Regarding GHG Market Design

The global stakes are too high to risk another California regulatory failure by adopting the CPUC's untried, micro-managed, load-based approach. The CPUC's rush to judgment about GHG issues without evidentiary hearings and in the absence of full discussion and debate is very reminiscent of the process followed in California's failed electricity "de-regulation" experiment.[17]

We would be much better off to adopt a market design that is feasible across the WECC and the rest of the U.S. Despite our stated goals, California will not be an effective "market leader," until our adopted market design elicits followers east of the Mississippi River. This will require a workable GHG market design that is compatible with the RGGI proposal to be implemented in 2009, the EU ETS now in operation, and potential U.S. federal GHG legislation, all of which are "source-based" market approaches.

Attached PowerPoint Presentation

The accompanying PowerPoint presentation, "Critical Elements of Greenhouse Gas Markets," was delivered to the Power Association of Northern California on May 8. It covers additional areas that the Air Resources Board should consider in making its decisions.

Respectfully submitted,

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[17] For the state of California, the world's 8th largest economy, to fail to analyze and scrutinize in adequate detail the long-run impacts of proposed GHG regulations would be negligent.